GNG 1103: Deliverable G

Prototype II and Customer Feedback

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Introduction

The objective of deliverable G is to receive constructive feedback from the client and the supervisor on the second prototype for our team's bed frame. The document goes over client feedback, goals that our team has set in order to improve the first prototype, testing methodology, prototype designs that build upon the first prototype and a general outline of the project plan.

What?

Improved the rigidity and functionality of our design and made the design more economically efficient by improving the topsheet design.

Why?

We are using a prototype as an early sample model of our product to be built to bring our concept to life and to test our concept so that they can be learned from, and using the feedback that we obtain from the instructors, we will maximize the functionality of our bed.

When?

The Updates are being done on a weekly basis to make proper adjustments towards the final prototype, ensuring a fully functional design.

1.0 Client Meeting/Feedback - Prototype II

Both the client and the supervisor were present at this meeting. Upon presenting the new prototype to the client, the client expressed her satisfaction with the design and the improvements made based on the previous meeting. The supervisor, who has a good understanding of mechanics, was also pleased with the design and its strength, but still provided suggestions to make the design even stronger. These suggestions pertained to the legs and making them more stable as they are weak to torsional load. It was suggested to put reinforcements within the legs so that they would hold their shape and to close off the top of the legs with a sheet of cardboard.

1.1 Integration of Feedback

Though the suggested features would provide much strength to the bed frame, their addition to the design would compromise the ability of the legs fitting into each other, which is a very important feature. However, we do see the value of these possible improvements and instead of omitting them from the design, we

compromised. The design will incorporate some form of reinforcement within the legs, while still allowing for the legs to be nested.

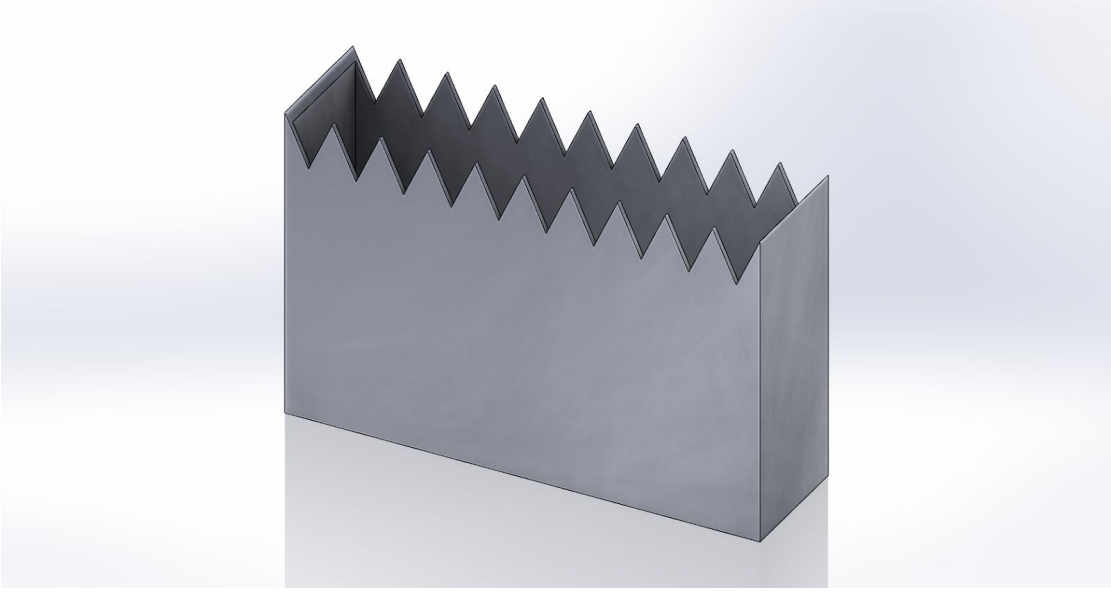
2.0 Final Design

Building on from the improved prototype based on the prior client meeting, we decided to incorporate cardboard boxes, with heights of roughly 10 cm, that would be situated inside of the legs. While this would not maximize the potential for this improvement, this addition would still provide some reinforcement, while still allowing the legs to be nested. Something that was realized during the construction of the prototype for the meeting was that instead of a single large sheet on top of the legs, individual slats could be used instead. The slats would be slightly more than half the length of the bed, and would overlap in the middle of the frame. This improvement maximizes cardboard usage and reduces the cost since smaller sheets of cardboard are cheaper.

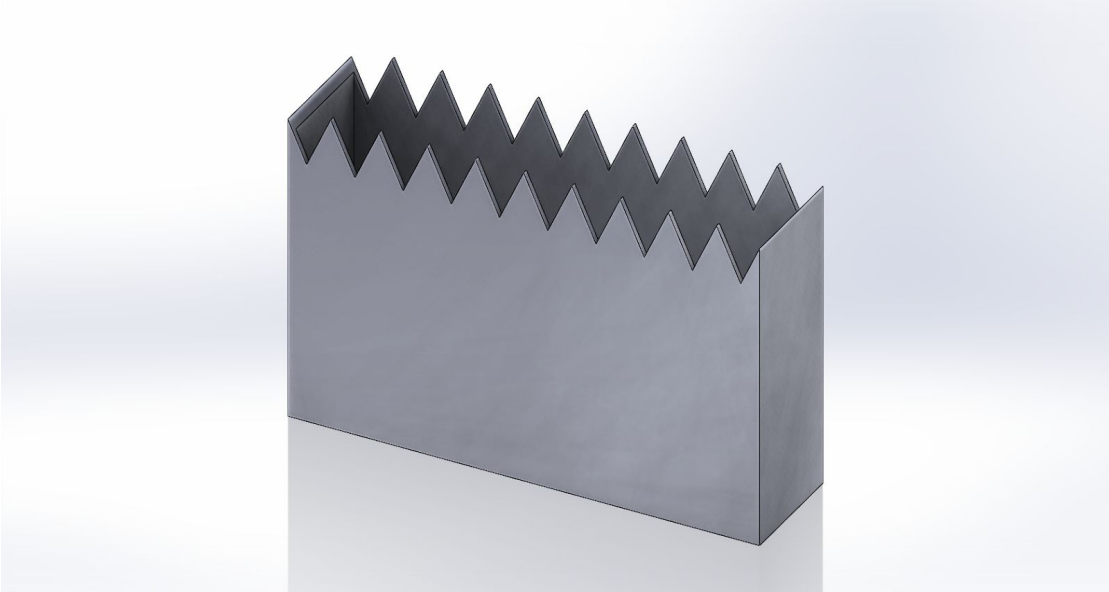
3.0 Prototype I

Note: Our first physical prototype was made with a 3D printer

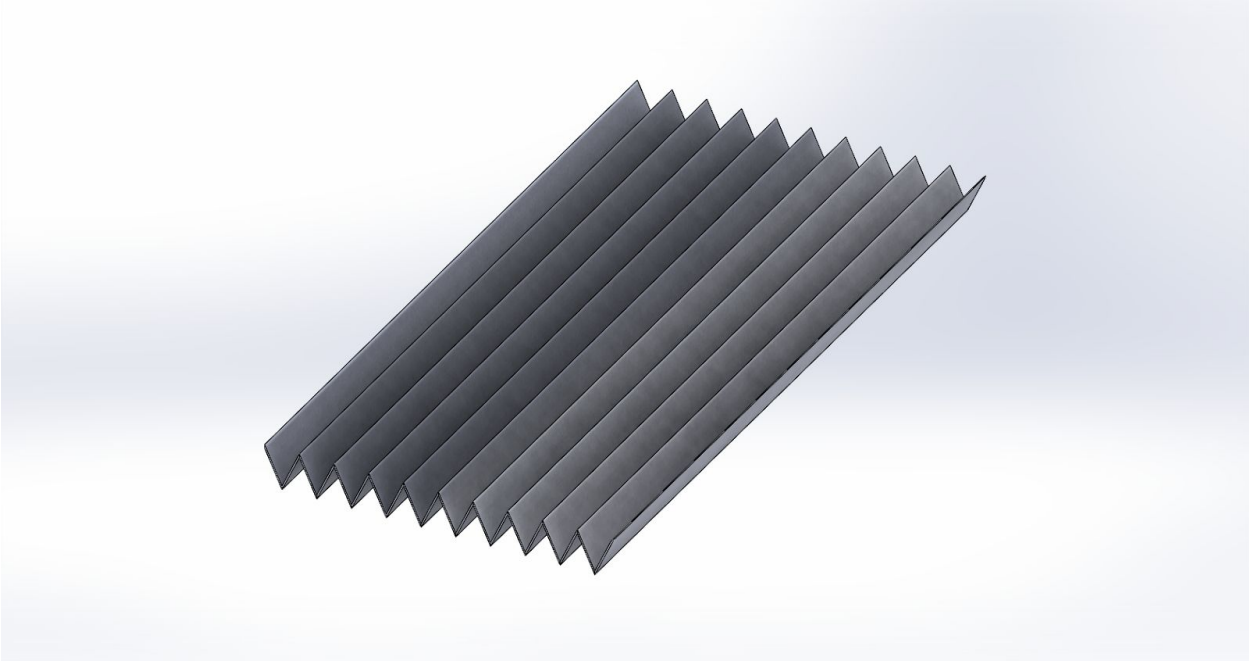
Outside Leg Version 1:



Inside Leg Version 1:



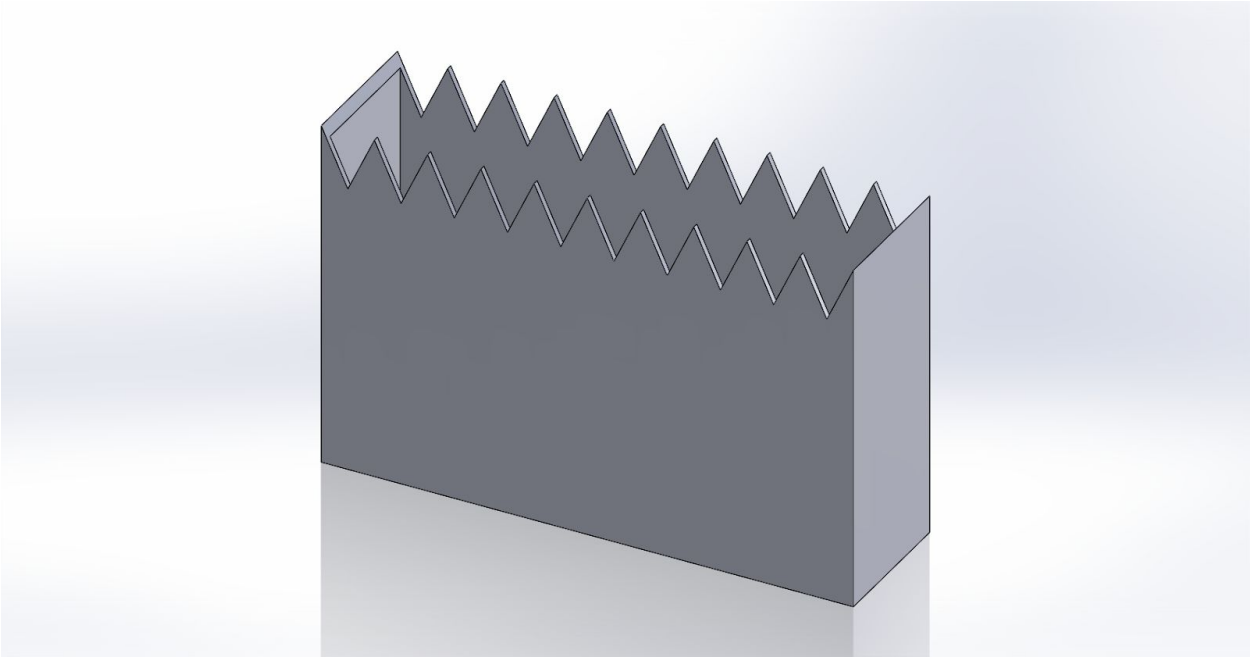
TopSheet Version 1:

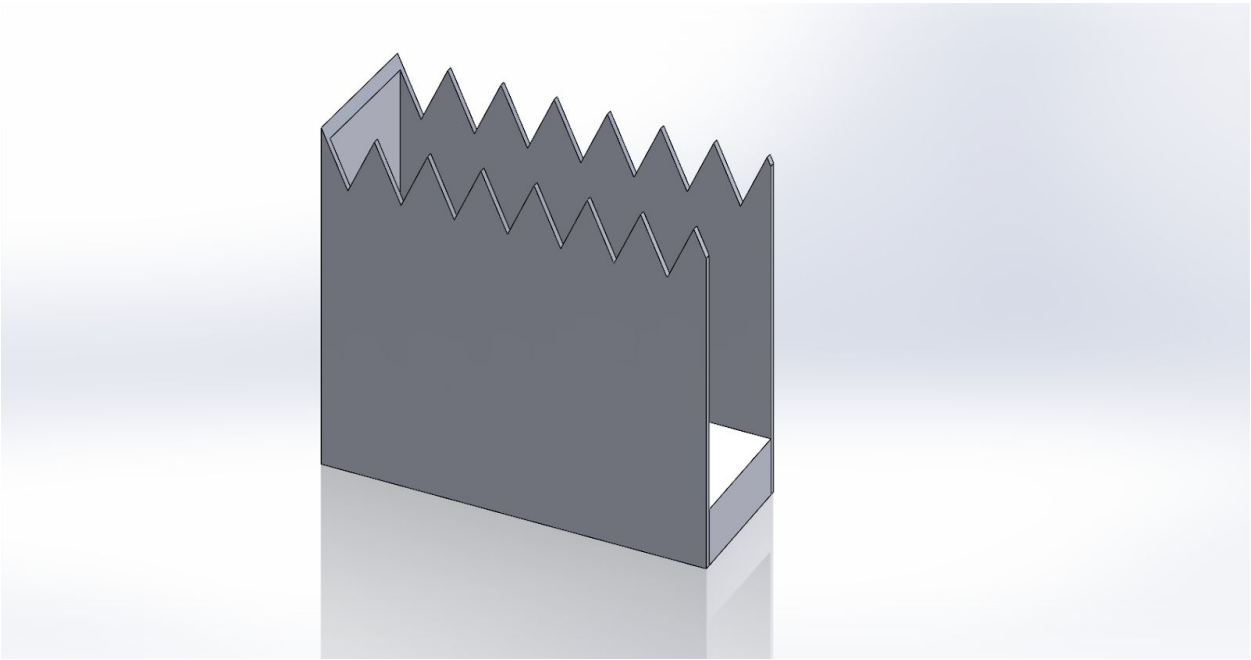


4.0 Prototype II

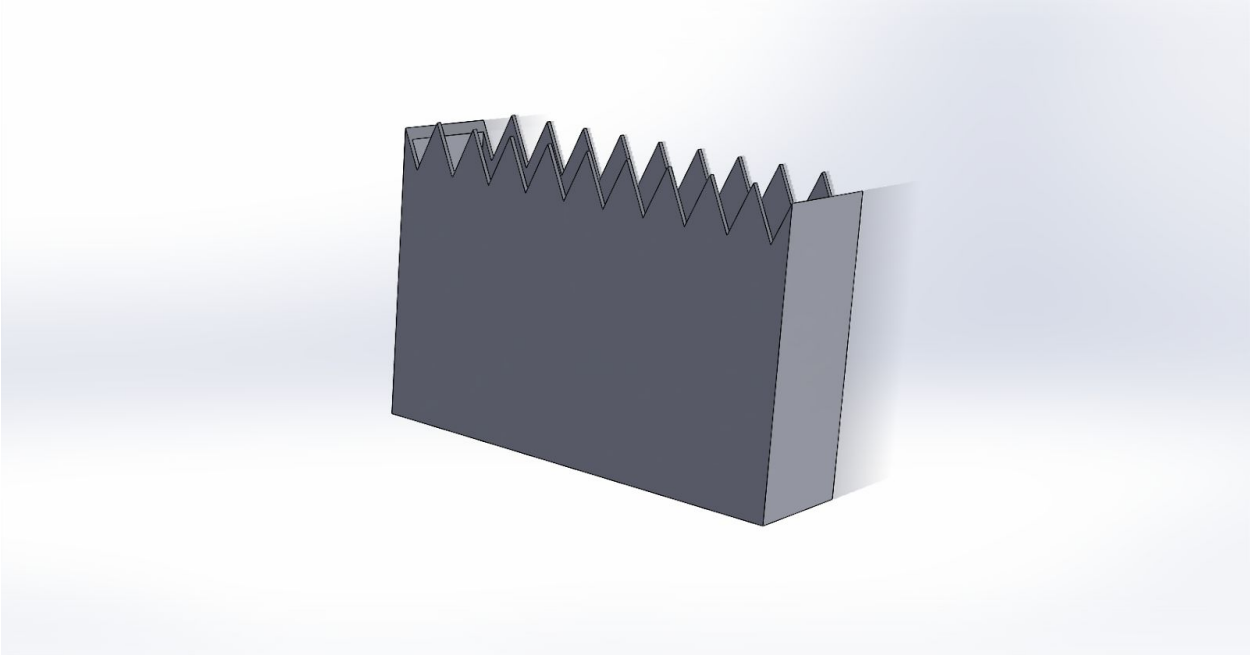
Our second prototype was made out of a scrap cardboard pizza box with the intention of clearly communicating the mechanism of the cardboard bed frame

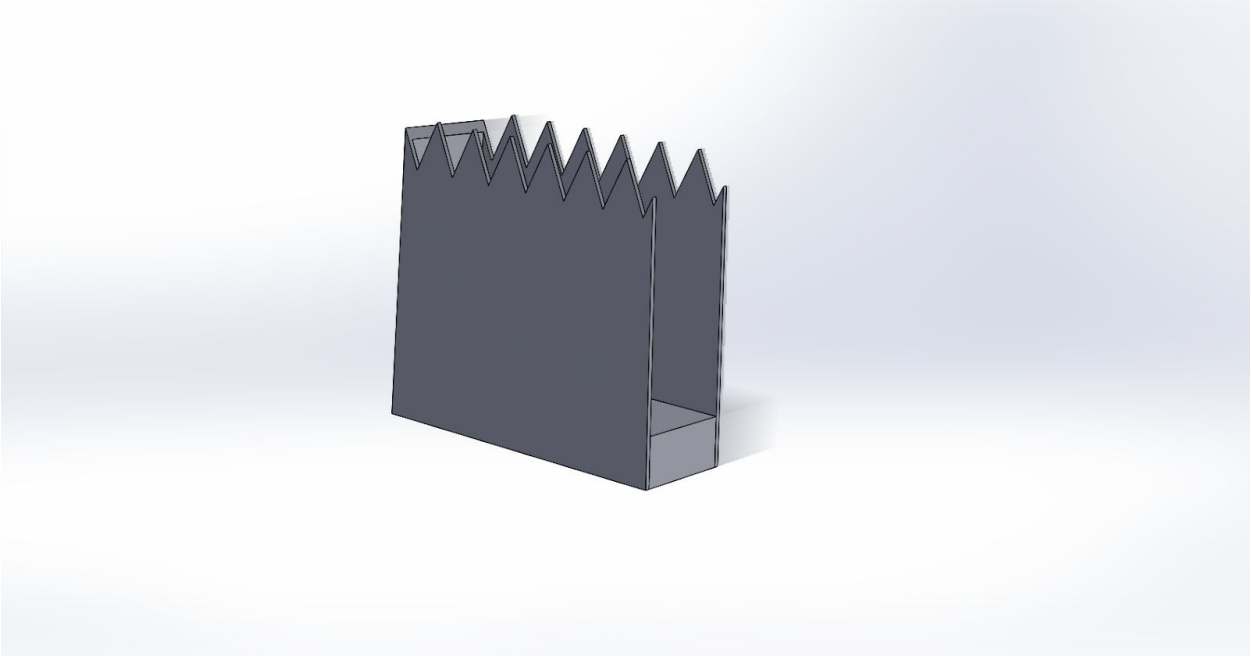
Outside Leg Version 2:



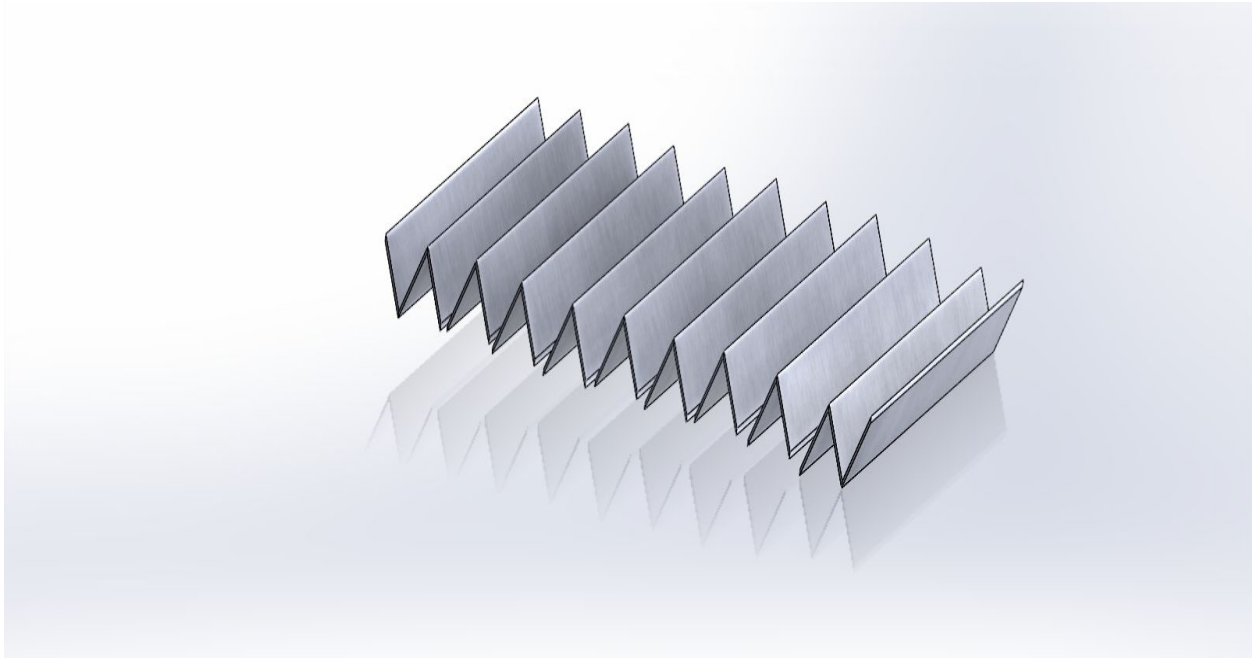


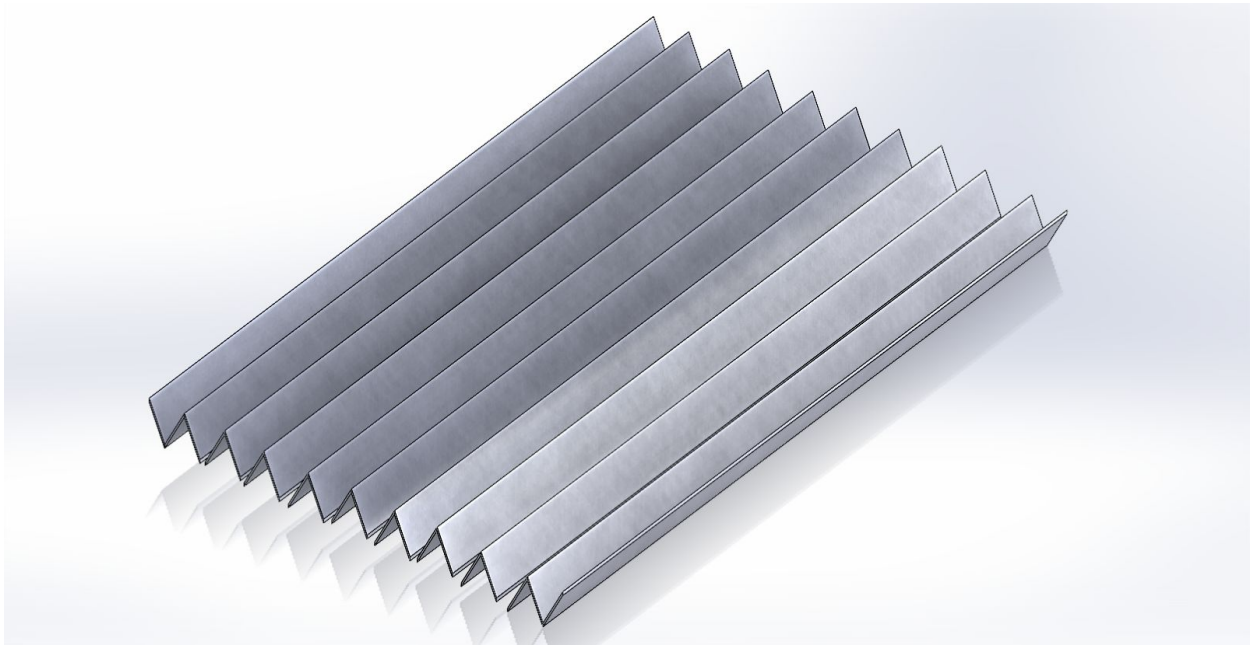
Inside Leg Version 2:

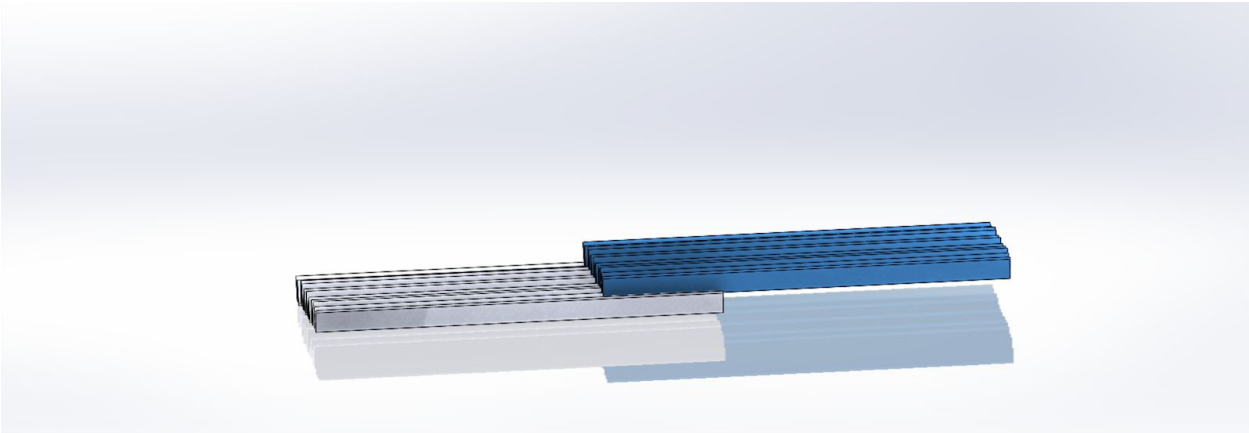


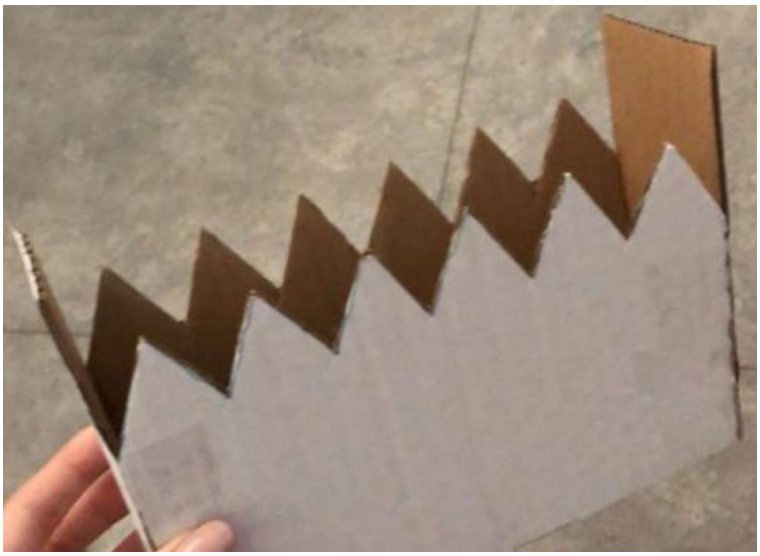


Top Sheet Version 2:









5.0 Conclusion

In conclusion, our prototype II and the client feedback results were successful as it enabled us to know what aspects of the current prototype needed to be improved in order for it to be very functional. The prototypes enabled us to communicate the vision of our idea to the client and supervisor to generate accurate and useful feedback. Our second prototype allowed the client to envision any possible problems that could arise in order to work on the said problems helping us create the perfect model for their needs, giving us a base on which to build our further improved prototypes. Overall, this is to allow us to make sure that our final prototype can be as functional as possible.